

EXPLANATION OF PLATE IV.

- Fig. 1. Walckenaëra Hasseltii.* *a*, spider, magnified; *b*, ditto, in profile, without legs or palpi; *c*, slightly perspective view of caput; *d*, caput, from in front, showing the position of the eyes; *e*, left palpus, from in front and rather inside; *f*, natural length of spider.
- Fig. 2. Walckenaëra nemoralioïdes.* *a*, spider, magnified, ♂; *b*, ditto, in profile, with legs and palpi removed; *c*, caput, from in front, showing the eyes; *d*, left palpus, from in front and rather on the inner side; *e*, radial joint of palpus; *g*, ♀ in profile, without legs or palpi; *h*, natural length of spider; *k*, genital aperture, ♀.
- Fig. 3. Walckenaëra nemoralis*, Bl. Part of palpus of ♂.

XI.—*A second Note on Pentastomum polyzonum.*

By F. JEFFREY BELL, M.A.

IN the sixth volume of the current series of the 'Annals' (pp. 173-176) I published a short note on the rediscovery of the *Pentastomum polyzonum* of Harley, two female specimens of which had been acquired by the British Museum in 1880. Lately we have received other specimens which formed part of the collection of the late Dr. Edwards Crisp, but are without any indication of origin* and not in first-rate condition.

A short time since an interesting essay on the structure of *Pentastomum* was published by Mr. W. E. Hoyle in the 'Transactions of the Royal Society of Edinburgh' (vol. xxxii. pp. 165-191), in which he describes a new species (*P. protelis*), and gives an account of its anatomy.

Mr. Hoyle was fortunate enough to have examples of both sexes of the parasite, and he describes the male as being 13-17 millim. in length, and as having sixteen or seventeen annuli. Of the two specimens which formed the basis of my former note neither was male; of the seven specimens now received one is a male, and I have been able to observe that it, while measuring 36 millim. in length, has only seventeen rings, and that the most anterior of these are much less prominent than they are in the female. In addition, therefore, to the numerous points of similarity indicated by Mr. Hoyle, we have another in the smaller number of annuli in the male than in the female. Another point is to be observed in the

* Although a careful search has been made in Dr. Crisp's collections, there are no indications of the *Pentastomum annulatum* of Baird, which did, I believe, on the dispersal of the Zoological Society's museum collections, pass into the hands of Dr. Crisp. It is greatly to be wished that this type should be found.

fact that of the six female specimens now before me two have twenty, while the others have only nineteen annuli; in other words, the result to which I was led (*tom. cit.* p. 176), a good deal to my surprise, as to the great value of the number of rings in the body, is a little shaken, although it falls in rather with one's general experience as to the specific value of numbers such as these. It is to be noted, further, that the two females with twenty annuli measured respectively 75 and 80 millim., or less than three with nineteen rings, which measured 90, 95, and 105 millim.; a specimen of 46 millim. in length had nineteen rings.

The fact that the male has seventeen annuli, while that of *P. protelis* has sixteen or seventeen, and the discovery of the fact that the female of *P. polyzonum* is not absolutely limited to nineteen rings, diminishes the gap that separated the two species, Mr. Hoyle being apparently inclined to give as much importance as I did to the seeming constancy of the number of rings in the female.

While these considerations, then, tend to the union of the species *P. protelis* with *P. polyzonum*, the fact that the two animals, the small carnivore and the voracious snake, do live in the same area gives a clenching force which, to my mind, is almost irresistible.

XII.—*The Causes of Variation.* By ROMYN HITCHCOCK*.

THE recent studies of Dr. W. B. Carpenter upon *Orbitolites*† are of special interest, owing to the remarkable manner in which the stages of variation and development have been traced. The monograph by Dr. Carpenter, published in the Reports of the 'Challenger' Expedition, was the subject of some remarks recently made by the writer before the Biological Society of Washington, in which an effort was made to explain how such a simple sarcode organism as the animal *Orbitolites* has been led to produce a shell of complex form. Dr. Carpenter regards it as the expression of a not understood "progressive tendency along a definite line towards a higher specialized type of structure in the calcareous fabric." This, however, is merely a statement of the facts observed, and in no wise assists in their explanation. Elsewhere it may be gathered from the author's words that he regards the

* From the 'American Journal of Science' for July 1884, pp. 49-52.

† Phil. Trans. part ii. (1883).